

NexUs – NextGen ERP

Business process and system transformation



equinor

Searching for better



Condition-Based Maintenance

A new resource in Equinor's Maintenance Toolbox

MainTech - April 2025

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Energising the world, empowering people

- Every day, we energise the lives of over 170 million people
- 22,000 employees in 30 countries.
- For 50 years, we've been **turning natural resources into energy for people and progress for society.**
- World's largest integrated offshore pipeline system



equinor



No 1

Pipeline gas supplier of
Natural gas in Europe

100bcm in 2021
Equinor equity and 3rd party volumes.



3rd

Largest net seller of
Crude oil in the world

2mbbls/d in 2021
Equinor equity and 3rd party volumes



~50

Fields on the NCC
Equinor-operated

Units online in 2025

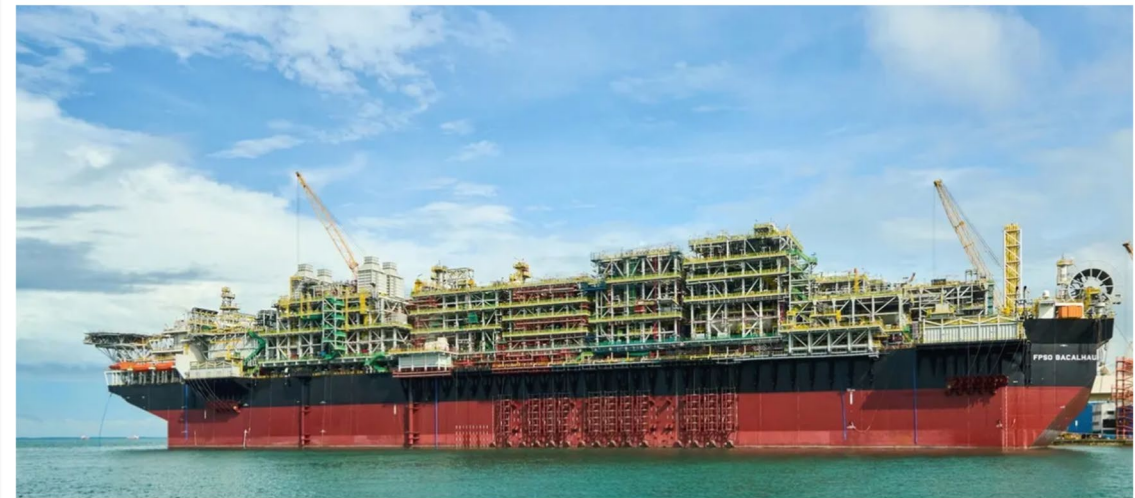
Johan Castberg FPSO

1. Produksjonsstart: 2025
2. Kapasitet 220 000 fat/ dag
3. Lokasjon: Barentshavet

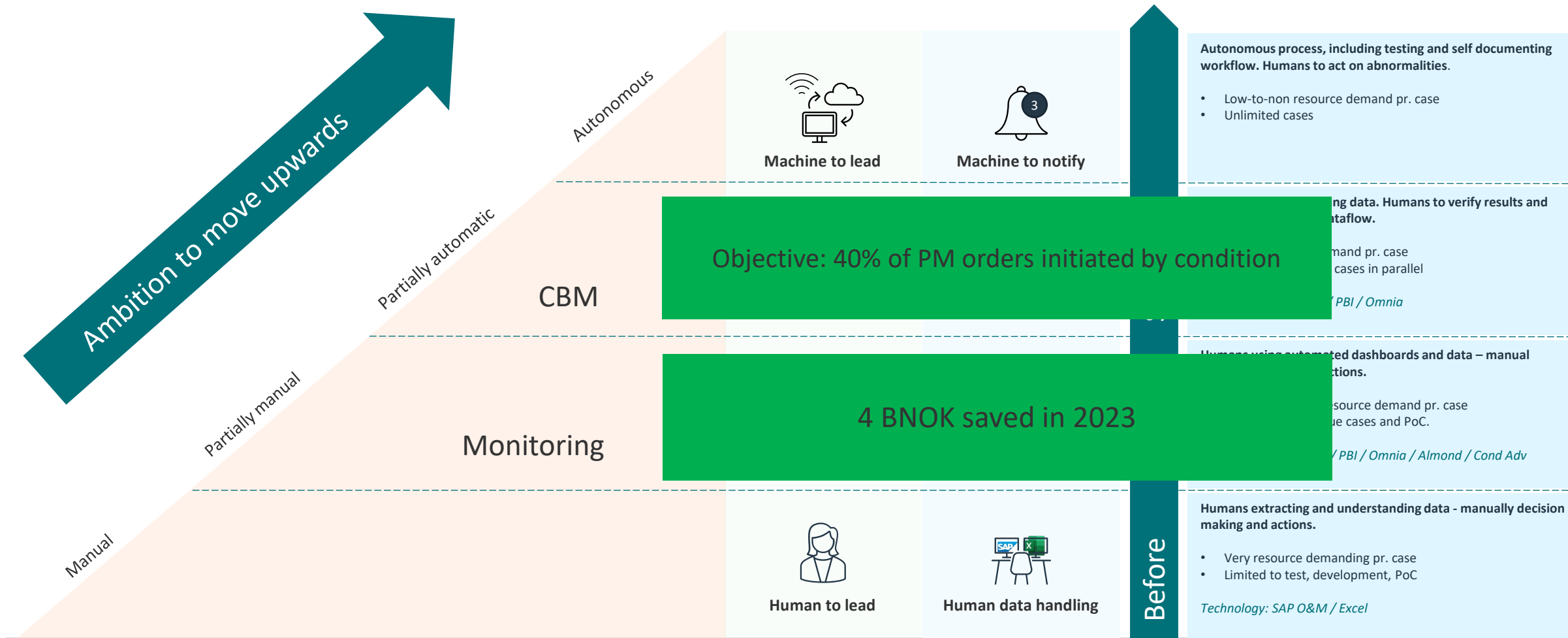


Bacalhau FPSO

1. Produksjonsstart: 2025
2. Kapasitet 220 000 fat/ dag
3. Lokasjon: Santos Basin, São Paulo



CBM and *PdM Roadmap – Maintenance Management View

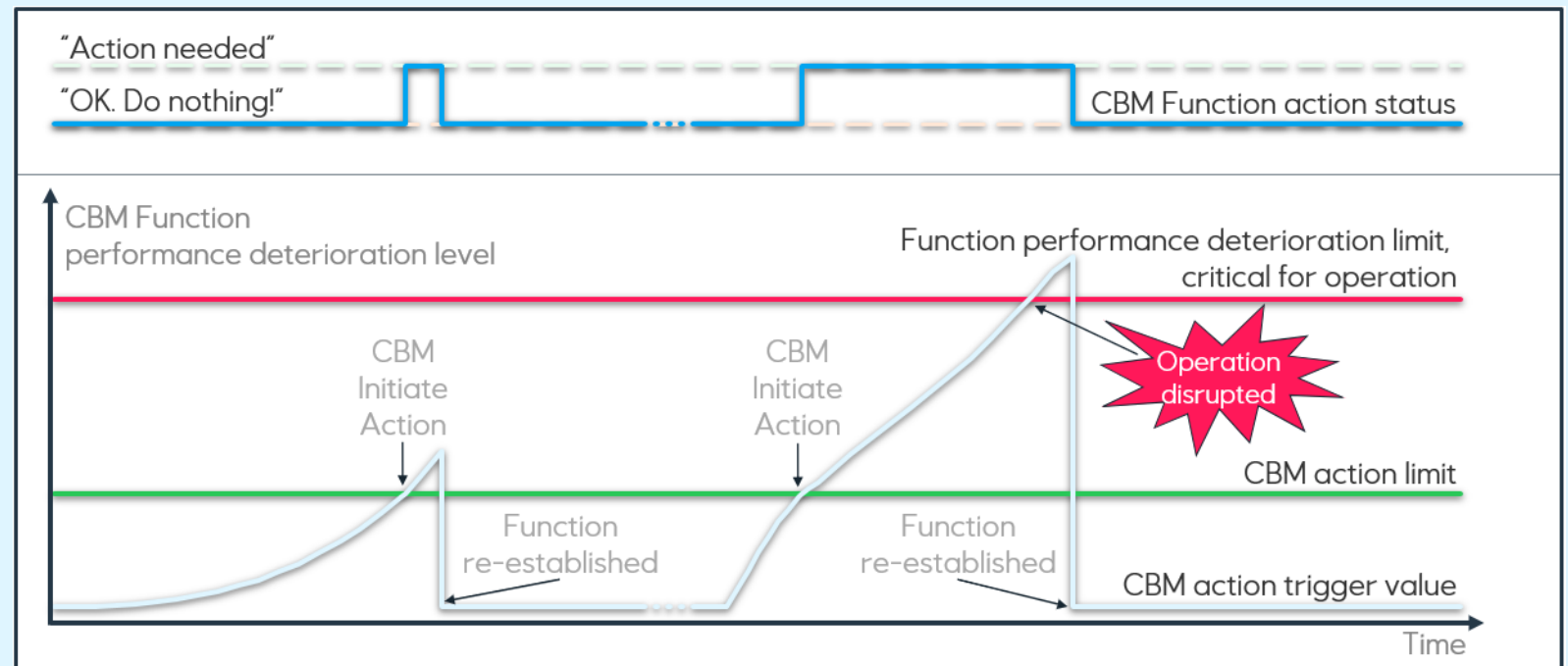


CBM – the principle

The primary purpose of Condition Based Maintenance is to provide confidence for continued safe operation and to avoid disruption of operation.

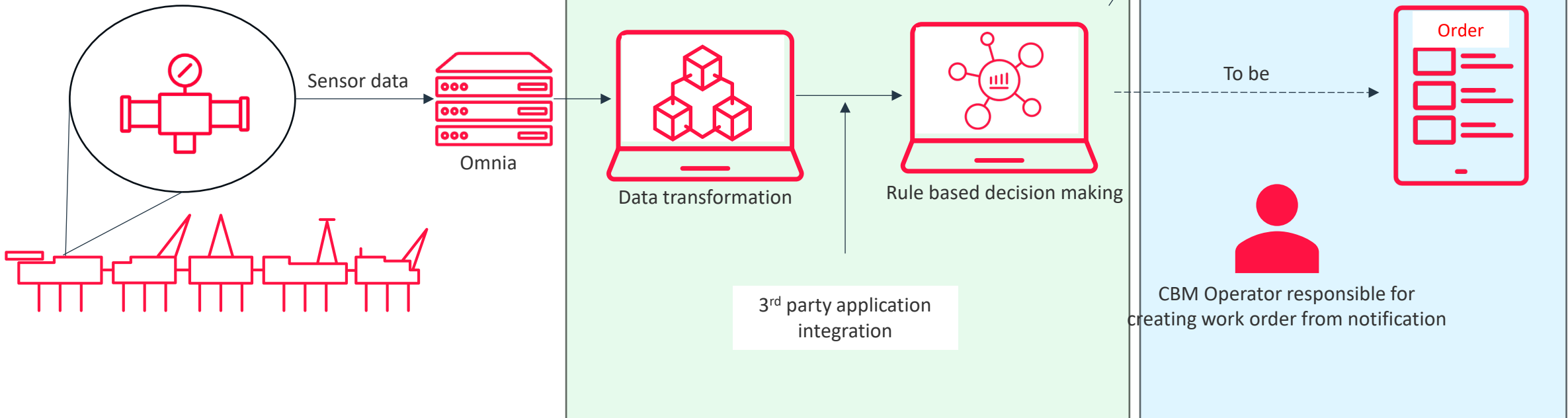
“If it works – don’t fix it”

This is achieved by **monitoring** safety and process critical functions and preferably **re-establishing** a function to its required performance level before deterioration/degradation of the function becomes critical for operation, by **initiating** and **executing** necessary (maintenance) actions



CBM Process Flow

From signal to action



7 rules to manage CBM

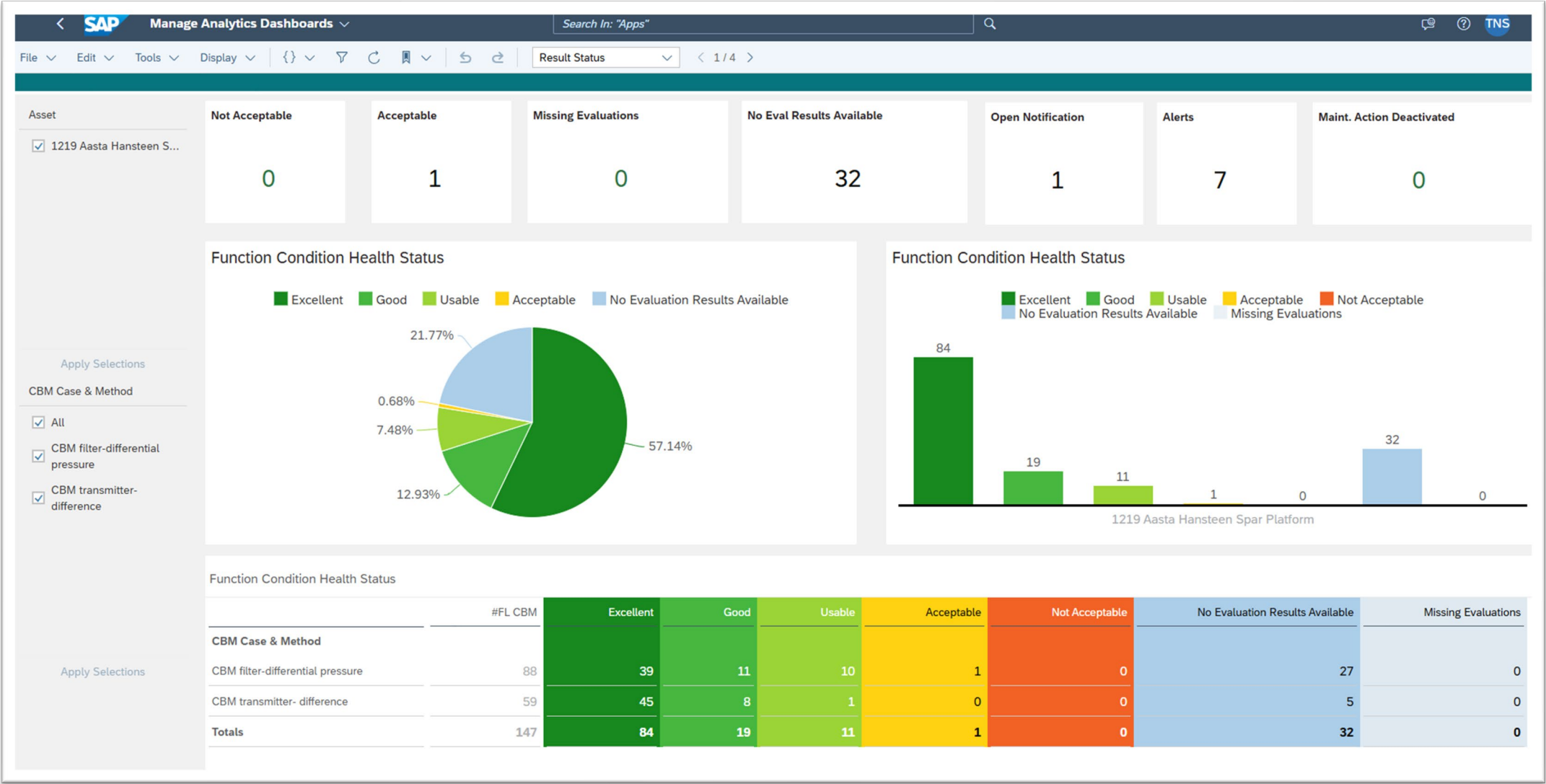
Rule
1. Data Quality evaluation
2. Smoothing time series Data
3. Calculating the «CBM action trigger Value»
4. Converting the «CBM action trigger value to scale of a normalized set
5. Set CBM function health status
6. Initiate maintenance action
7. Initiate data quality action

Initiate Data Quality Action could be by:

- email action
- issue a Service Request

Still to be decided...

CBM – Results Status Dashboard - SAC



Function Condition Health Status

Excellent Good Usable Acceptable No Evaluation Results Available

21.77%

0.68%

7.48%

12.93%

57.14%

Function Condition Health Status

Excellent Good Usable Acceptable Not Acceptable No Evaluation Results Available Missing Evaluations

84

19

11

1

0

32

0

1219 Aasta Hansteen Spar Platform

Function Condition Health Status

	#FL CBM	Excellent	Good	Usable	Acceptable	Not Acceptable	No Evaluation Results Available	Missing Evaluations
CBM Case & Method								
CBM filter-differential pressure	88	39	11	10	1	0	27	0
CBM transmitter- difference	59	45	8	1	0	0	5	0
Totals	147	84	19	11	1	0	32	0

EQUINOR | CBM Escalation

CBM – Indicator Monitoring

HEATING MEDIUM FILTER
1219-41CB001



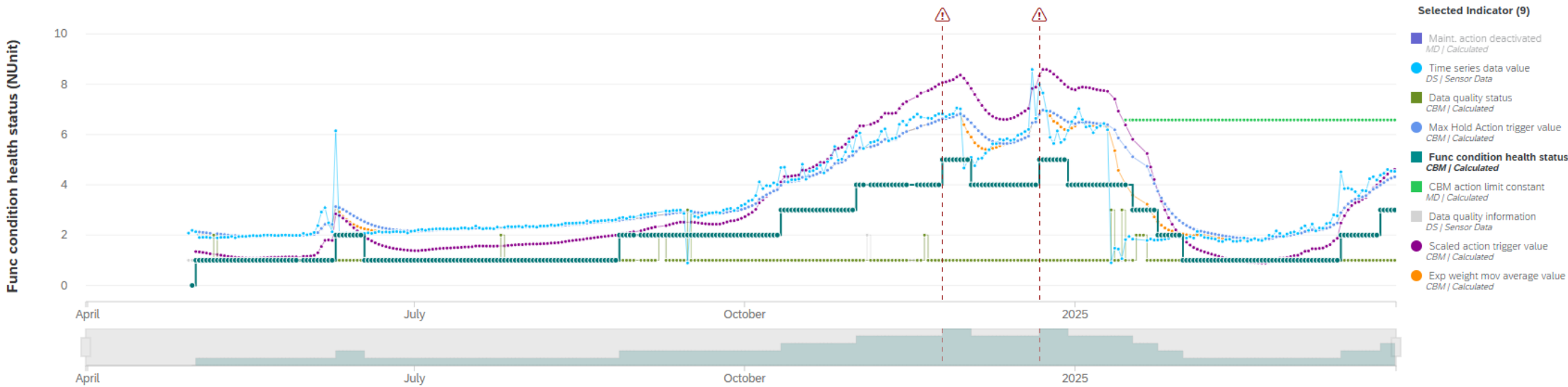
Category: Main equipment (M)
Class: Main Equipment (MAIN_EQUIPMENT) and 3 more
Object Type: Filter, NonReg (FB0301)

Risk Score
Criticality
Crit.=M & Red.=A (2)
Status
Created

Information Class – Characteristics Indicators **Indicator Monitoring** Analytics

My Standard past year* Duration Past 1 Year(s)

Select Indicators Last refreshed at: 11:56AM



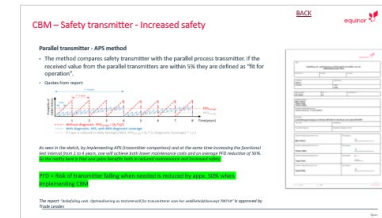
CBM – Value cases

The CBM value cases can be divided in the following groups:

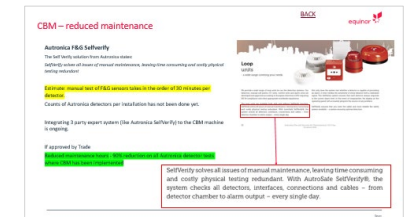
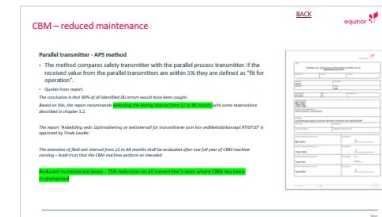
- Increased safety
- Saved maintenance hours
- Reduced material cost
- Increased Production Efficiency

Examples for each category – click on Slide icons to the right

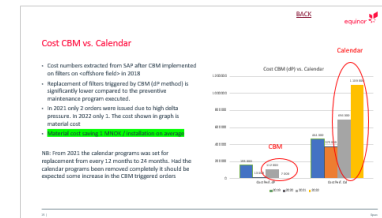
Increased safety



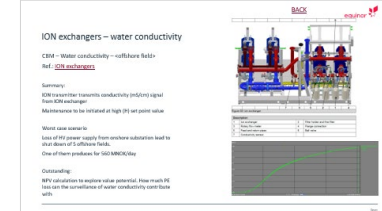
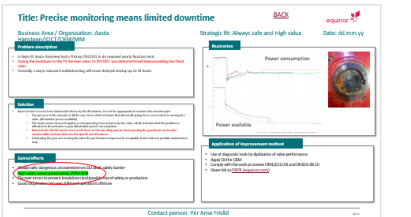
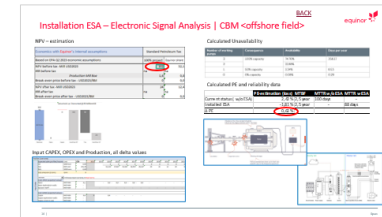
Reduced maintenance hours



Reduced material cost



Increased Production Efficiency





CBM | Implementation

How to implement CBM in Equinor

EQUINOR | CBM Escalation

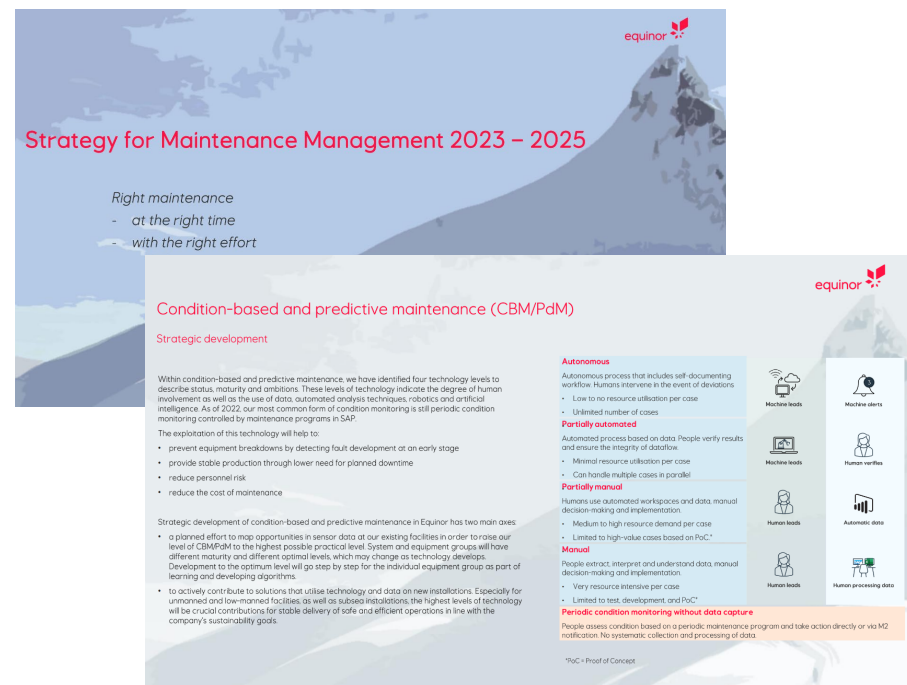
Focus areas

- ❖ Strategy
- ❖ Organization
- ❖ Standardized work processes
- ❖ Communication and training

Strategy for Maintenance Management

Ensure commitment

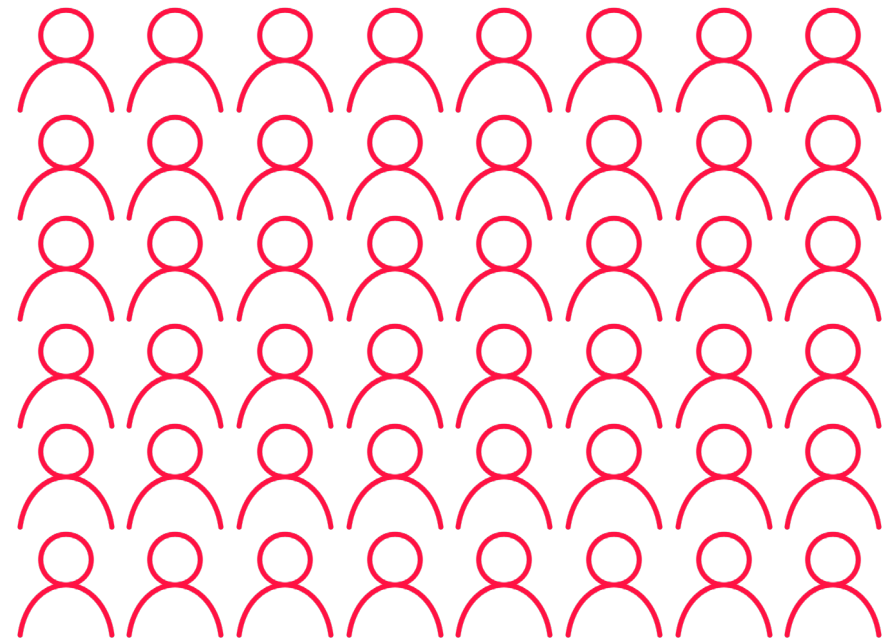
- ❖ CBM is one of four development areas in the strategy for maintenance management
- ❖ Strategy for maintenance management is aligned with upper management
- ❖ Ongoing work to update strategy for 2026-2030



EQUINOR | CBM Escalation Organization

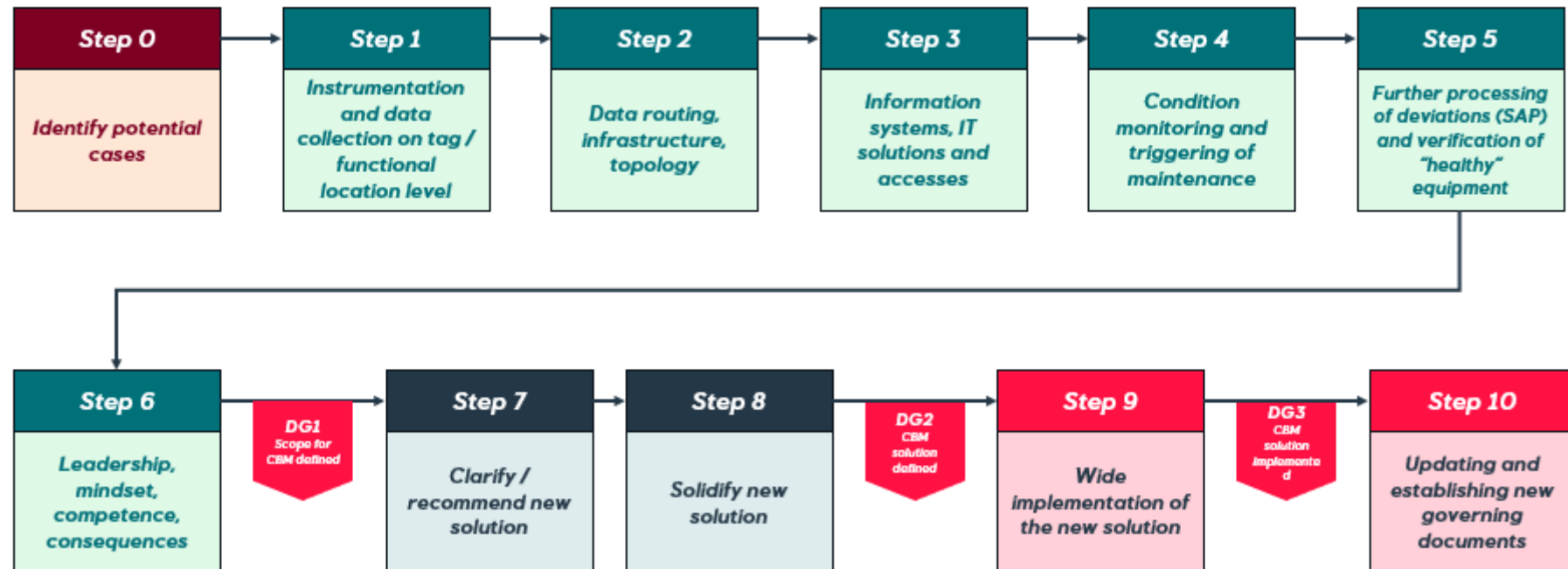
Use the organization

- ❖ Large matrix organization
- ❖ Stakeholder management
- ❖ Understanding roles and responsibilities
- ❖ One project team responsible for implementation across all assets
- ❖ Project team responsible for enabling collaboration between different departments in Equinor



EQUINOR | CBM Escalation

Standardized work processes



EQUINOR | CBM Escalation Organization

Communication and training

- ❖ Broad information campaign across Equinor – increased understanding of what CBM is
- ❖ Specialized training program for personnel involved in maintenance management loop
- ❖ Standardized DAP (Digital Adaption Platform) tool for training